

An under-baseboard photograph. The theoretical diagram should be used for wiring, but this photo. and the layout diagram will be found useful for checking purposes.

TAST week's instalment of the description of this receiver was mainly occupied by an outline of the principle on which the "Super Six," and, in fact, all superhets, work. A list of parts and a theoretical circuit was also given, so that the constructor could become familiar with the details of the set. This week we propose to deal mainly with the actual construction.

Not the least remarkable of this set's qualities is the ease with which it may be constructed. Several years ago we would never have dreamt of advising anyone unversed in the art of radio to begin by building a six-valve superheterodyne. The fact that we do so now is an indication of the tremendous strides which have been made in receiver design over the last few years.

The first task, after procuring all the necessary components, is to drill the baseboard to take the six valve holders, which are mounted through it. It will save much trouble if this is purchased ready drilled. The operation may be quite easily performed, however, by describing the required circles, which will be about 1½ in diameter, depending upon the type of valve base used, and then by going round just inside the circumferences with a drill until the centre portions can be taken out. The circles can then be trimmed up with a pocket knife.

After these six sockets have been mounted, the remainder of the above baseboard components can be placed in position and screwed down. All the necessary dimensions are given in the lay-out sketch. It will be necessary to solder angle brackets to the oscillator

coil, i.e., that nearest the front panel, so that it may be screwed down to the base.

A point here concerning the mounting of the English valve sockets, which take the three intermediate frequency transformer coils. It will be noticed from the lay-out sketch that the two on the extreme right are not in the same relative position to the valves as those shown in the photograph. This is because, in the original model (a photograph of which appears on this page) super het. coils of foreign make were employed. The leads coming out on top of the cans of two of the coils are longer than those used in the English type of coil. As the latter did not arrive until the original model of the "Super Six" was built, however, this was not discovered until after the photograph had been taken. The later coils, however, which are now, to our knowledge, the only ones available, have since been incorporated in this set by shifting the two valve holders in question along to the right. No other change in lay-out was involved.

We mention this point because the wiring on the constructor's set may appear a trifle different from that shown by the under baseboard photograph, and it may be thought that a mistake has been made. It will be noticed, however, that the wires from the two valve sockets in question will be merely shifted along an inch or so to the left.

Under Baseboard Components.

THE baseboard should now be turned over and the under baseboard components mounted. All the connecting wires are clearly shown in the photograph, those passing through the baseboard being indicated with corresponding numbers above and below, so that no possible error can be made. When the wiring is completed, however, it should be checked over from the theoretical diagram. The distribution strip toward the top left of the photograph is not absolutely necessary, for the various wires in the battery cable may be run straight to the designated positions, but by its inclusion the wiring is much neater and more businesslike. It will be noticed that three spaghetti re-

Full Constructional Details of "The SUPER SIX"

By the Asst. Technical Editor

distances are used. These are incorporated to give the necessary voltage drops at the different points of the set. Volume is controlled by another resistance in the form of a potentiometer, which operates on the screen-grid voltage. It will be noticed that in series with this, on the positive side, is a 20,000 ohms resistance. If this were not used there would always be a danger of applying too much voltage to the screen-grids.

It may be wondered why we have included a three-point on/off switch. It will be noticed, however, that whether the filaments are on or off the potentiometer is always across the "B" battery, and hence, unless the circuit is broken, it is always drawing current, which, by the way, is in the neighbourhood of two or three m. amps. Though small, this drain is constant, and would materially shorten the life of the "B" batteries. Hence a three-point on/off switch is employed to break both the filament and potentiometer circuits.

The panel components should now be mounted. Notice that the screening box surrounding the tuning condenser on the left, looking at the panel, does not touch the baseboard screen. This is important because this box is in contact with the moving vanes of the

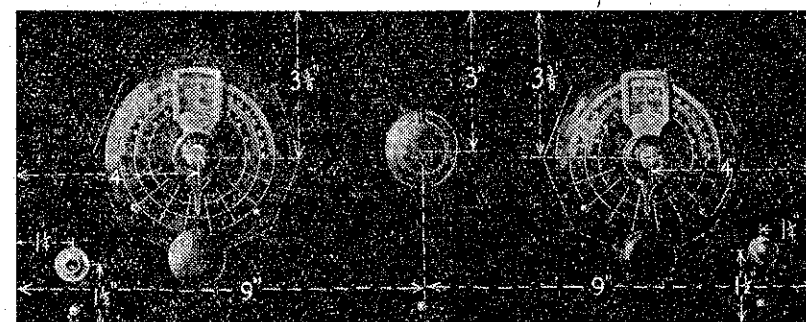
variable condenser, and because of the 1½ volts grid bias on the oscillator valve it is at this difference of potential from the baseboard. This point should be carefully watched.

Notice also that the three screening cans of the intermediate frequency transformers, which are earthed internally, should not be earthed externally, nor should they be allowed to touch.

The Wiring.

WHEN the front panel has been mounted on the baseboard by means of three screws, the receiver is ready to wire. Notice that the three filament terminals nearest the panel on the valve holders used for mounting the coils are earthed by taking a short wire from each to one of the screws which hold the valve holders to the baseboard. This is clearly shown in the layout sketch. The various wires running to the distribution board should be tagged as shown in the photograph to avoid mistakes, and similar tags attached to the other end of the wires where they emerge from the battery cable.

When the wiring is completed it should be completely enclosed with an aluminium base of the dimensions



Above: A photo of the panel, giving dimensions. Below: A general view of the set.

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